REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the subject application. The Office Action of June 19, 2002 has been received and contents carefully reviewed.

Claims 1-20 are pending and claims 6-14 are withdrawn from consideration. Applicants respectfully request the Examiner to acknowledge the claim for foreign priority under 35 USC § 119. The priority document was filed with the new US application on May 16, 2001.

The Examiner objected to the drawings under MPEP 608.02(g) because Figure 3 [sic] is not designated --Prior Art-- and under 37 CFR 1.84(p)(5) because of a missing reference sign in Figure 1. Applicants submits herewith a Request for Examiner's Approval of Drawing Changes and request that the objection as to Figure 3 be withdrawn. Applicants has amended the specification to correct minor informalities and request that the objection as to Figure 1 be withdrawn.

The Examiner rejected claims 1-5 and 15-20 under 35 USC § 103(a) as being unpatentable over Applicant's Related Art Figures 1, 2, and 4 (AF) in view of Yamazaki et al. (US Patent No. 6,261,881). Applicants respectfully traverse this rejection.

Claim 1 is allowable at least for the reason that claim 1 recites a combination of elements including forming a silicon layer on the organic insulating layer in the equipment without breaking the vacuum.

Claim 15 is allowable at least for the reason that claim 15 recites a combination of elements including transferring the substrate having the organic layer from the first chamber to a second chamber without exposing the substrate having the organic layer to oxygen

atmosphere during transfer; forming an active layer on the organic layer in the second chamber.

Claim 18 is allowable at least for the reason that claim 18 recites a combination of elements including transferring the first substrate having the organic layer from the first chamber to a second chamber without exposing the first substrate having the organic layer to oxygen atmosphere during transfer; forming an active layer on the organic layer in the second chamber.

None of the cited references, singly or in combination, teaches or suggests at least these features.

The present invention relates to an inverted staggered type thin film transistor (TFT) including an organic gate-insulating layer. For example, U.S. Patent No. 4,624,737 shows a process performed in at least two chambers without breaking the vacuum to prevent contamination that does not include an organic gate-insulating layer. As shown in the Related Art figures, an organic insulating film is generally deposited and cured under atmospheric pressure. In the Office Action, the Examiner stated that AF fail to teach transferring the first substrate having the organic layer from a first chamber to a second chamber without exposing the first substrate to oxygen atmosphere.

The Examiner cited Yamazaki et al. to cure the deficiencies of AF. However, in contrast to claims 1, 15, and 18 of this application, Yamazaki et al. teaches that a third chamber is used for forming the insulating film 105 in column 9, lines 28-37 and for forming a protective film 509 in column 15, lines 21-43. Yamazaki et al. does not teach or suggest the claimed invention as a whole. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed.

piecemeal

Cir. 1983); see also *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976). Yamazaki et al. may teach forming an organic insulating film using specific processes and specific apparatuses, but fail to teach or suggest explicitly or implicitly a method of fabricating a thin film transistor including heating and curing the organic insulating layer under vacuum conditions, and forming a silicon layer on the organic insulating layer without breaking the vacuum.

Yamazaki et al. is not attempting to solve similar problems with the same solution. "[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the 'subject matter as a whole', which should always be considered in determining the obviousness of an invention under 35 U.S.C. § 103." *In re Sponnoble*, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969). However, "discovery of the cause of a problem . . . does not always result in a patentable invention. . . . [A] different situation exists where the solution is obvious from prior art which contains the same solution for a similar problem." *In re Wiseman*, 596 F.2d 1019, 1022, 201 USPQ 658, 661 (CCPA 1979) (emphasis in original).

Furthermore, the Examiner has not pointed out a particular finding as to the specific understanding or principle within the knowledge of a skilled artisan, either expressly or by implication that would have motivated one with no knowledge to combine or modify AF and Yamazaki et al. Applicant respectfully submits that no proper motivation or suggestion is found for one of ordinary skill in the art to modify AF to arrive at the claimed method. Further, such combination is suggested only by the claimed invention, which is considered impermissible hindsight reconstruction. Through the combination of references used by the Examiner, he has taken a specific aspect of the claims, i.e., forming an organic insulating

layer, to be the only advantage of the invention, and disregarded the other elements of the claim. Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness.

Accordingly, Applicants respectfully request that the rejection under 35 USC § 103 be withdrawn.

Applicants believe the foregoing amendments place the application in condition for allowance and early, favorable action is respectfully solicited. Should the Examiner deem that a telephone conference would further the prosecution of this application, the Examiner is invited to call the undersigned attorney at (202) 496-7371.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136. Please credit any overpayment to deposit Account No. 50-0911.

Respectfully submitted,

MCKENNA LONG & ALDRIDGE LLP

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By _____
Teresa M. Arroyo
Registration No: 50,015

1900 K Street, N.W.
Washington, DC 20006
Tel: 202-496-7500
Fax: 202-496-7756

MARKED-UP VERSION OF AMENDED SPECIFICATION

Page 3, paragraph beginning on line 15:

When an electric signal is applied to the gate electrode [26] of the TFT "S", a data signal can be applied to the pixel electrode 14. Thus, unless the electric signal is applied to the gate electrode, a data signal cannot be applied to the pixel electrode 14.

Page 7, paragraph beginning on line 9:

For the above-mentioned conventional process for forming the BCB gate-insulating layer, the substrate having a BCB film is in an atmospheric condition during a transfer from the heat oven to the vacuum equipment, after curing. In that case, atmospheric oxygen gas may combine with the surface of the BCB film, or contaminants in the atmosphere may be attached to the surface thereof such that the BCB film is contaminated. If the BCB film has a contaminated surface, an interface property between the BCB gate-insulating layer and the active layer is deteriorated. Returning to FIG. 3, an interface "F" between the gate-insulating layer 33 and active layer 34 directly affects an on-current property of the TFT "S". As mentioned above, if the interface "F" is poor, the electric [characteristics] characteristics of the TFT "S" [deteriorats.] deteriorates. Returning to FIG. 4 illustrating the conventional process, the BCB film is present in the atmosphere during a transfer between the curing of the BCB film and the forming of the active layer. Then, the surface of the BCB film is contaminated such that the BCB gate-insulating layer made of the BCB film and the active layer which will be formed later have a poor interface property therebetween.